

What is claimed is:

1. A ceramic honeycomb structural body,  
comprising:

5 lattice walls formed by a large number of  
cells which are channels for fluid; and

a peripheral wall which covers the  
circumference of said lattice walls, an outer peripheral  
portion of said lattice walls at least located in the  
vicinity of said peripheral wall containing a denser  
10 portion of a smaller porosity than that of an inner  
peripheral portion of said lattice walls which is located  
inside said outer peripheral portion.

2. The ceramic honeycomb structural body, as  
claimed in claim 1, wherein  $\Delta Pr$  demonstrated by the  
15 following equation is not less than 5%:

$$\Delta Pr = -(P_{out} - P_{in})/P_{in}$$

in which  $P_{out}$  is a porosity of said denser portion in the  
outer peripheral portion of said lattice walls, and  $P_{in}$   
is a porosity of the inner peripheral portion of said  
20 lattice walls.

3. The ceramic honeycomb structural body, as  
claimed in claim 1 or 2, wherein a thickness of the outer  
peripheral portion of said lattice walls is not less than  
1.2% of a distance between the center of said body and  
25 the inner side of said peripheral wall.

4. The ceramic honeycomb structural body, as  
claimed in claim 1, 2 or 3, wherein the porosity of said  
denser portion in the outer peripheral portion of said  
lattice walls is gradually reduced from the inside to the  
30 outside.

5. The ceramic honeycomb structural body, as  
claimed in one of claims 1 - 4, wherein the thickness of  
the outer peripheral portion of said lattice walls is  
0 - 400% larger than that of said inner peripheral  
35 portion.

6. The ceramic honeycomb structural body, as

claimed in any one of claims 1 - 5, wherein a boundary area between the inner and the outer peripheral portions in said lattice walls gradually decreases in thickness from the outside to the inside.

5           7. The ceramic honeycomb structural body, as claimed in any one of claims 1 - 6, wherein the difference in thermal expansion coefficient between the inner and the outer peripheral portions in said lattice walls is within  $\pm 0.5 \times 10^{-6}/^{\circ}\text{C}$ .

10           8. A method of preparing the ceramic honeycomb structural body, comprising: lattice walls formed by a large number of cells which are passes for fluid; and the peripheral wall which covers the circumference of said lattice walls, the outer peripheral portion of said  
15 lattice walls at least located in the vicinity of said peripheral wall containing the portion of smaller porosity denser than that of the inner peripheral portion of said lattice walls which are located inside said outer peripheral portion, characterized in that a melting-point  
20 lowering component, which lowers a melting point of a material constituting said ceramic honeycomb structural body, is applied on at least the outer peripheral portion of said lattice walls of said body, and then the resulting body is heat-treated to form said denser  
25 portion.

          9. The method of preparing the ceramic honeycomb structural body, as claimed in claim 8, wherein the content of alkali metals and alkaline earth metals in said melting-point lowering component is less than 0.5%.

30           10. The method of preparing the ceramic honeycomb structural body, as claimed in claim 8 or 9, wherein said melting-point lowering component is applied on the outer peripheral portion of said lattice walls in a manner in which the applying amount gradually increases from the  
35 inside to the outside.

          11. A ceramic honeycomb structural catalyst, wherein a catalyst component is supported on the ceramic

honeycomb structural body, as claimed in any one of claims 1 - 7.

5        12. A method, for preparing a ceramic honeycomb structural catalyst, wherein a catalyst component is supported on the ceramic honeycomb structural body, as claimed in any one of claims 1 - 7.